DOCUMENT RESUME

ED 427 728 IR 019 279

AUTHOR	Parker, Drew; Rossner-Merrill, Vivian
TITLE	Socialization of Distance Education: The Web as Enabler.
PUB DATE	1998-11-00
NOTE	7p.; In: WebNet 98 World Conference of the WWW, Internet and Intranet Proceedings (3rd, Orlando, FL, November 7-12, 1998); see IR 019 231.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Business Administration Education; *Computer Assisted Instruction; *Computer Mediated Communication; Constructivism (Learning); *Cooperative Learning; Course Content; *Distance Education; Foreign Countries; Group Discussion; Higher Education; *Instructional Design; Interaction; Learning Strategies; Social Influences; World Wide Web
IDENTIFIERS	*Cognitive Flexibility; *Course Development; Interactive Systems; Simon Fraser University (Canada); Virtual Classrooms

ABSTRACT

The World Wide Web has allowed the delineation of distance versus place-based education to become a spectrum rather than a binary choice. This paper discusses a novel format of distance education, called "Virtual Seminars," and its relation to issues within cognitive flexibility theory. Virtual seminars are interactive courses offered over the Web, with a weekly term structure and a strong participative component. A business administration course at Simon Fraser University (Canada) that focuses on telecommunications applications for the corporate and private sectors is offered as an example. The implementation of the following instructional design principles in order to take advantage of the flexibility of the computer-based medium is described: (1) present information from multiple perspectives using case studies that present diverse examples; (2) make instruction very specific; (3) create opportunities for students to develop and articulate their own representations of information; (4) emphasize students' active knowledge construction rather than passive transmission of information from instructor to student; (5) introduce students to the complexity of the information to be learned at the outset of the course; (6) stress the interconnectedness of the content to be learned; and (7) avoid oversimplification of content. A vignette, outlining how a student interacts with the course, concludes the paper. (Author/AEF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 427 728

Socialization of Distance Education: The Web as Enabler

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

G.H. Marks

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Drew Parker
Faculty of Business Administration
Simon Fraser University
Burnaby, British Columbia, Canada
parker@sfu.ca

Vivian Rossner-Merrill
LohnLab for Online Teaching
Simon Fraser University
Burnaby, British Columbia, Canada.
rossner@sfu.ca

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Abstract: The World Wide Web (WWW) has allowed the delineation of distance versus place-based education to become a *spectrum* rather than a binary choice. This paper discusses a novel format of distance education, namely 'Vitrual Seminars,' and their relation to issues within Cognitive Flexibility Theory. Virtual seminars are interactive courses offered over the WWW with a weekly term structure and a strong participative component. A particular course is offered as an example, and a vignette concludes the paper outlining how a student interacts with that course.

Introduction and Overview

Distance Education is coming of age. Historically, as a correspondence medium, it provided an alternative to other forms of educational delivery because of its flexibility in time and place. Criticism of the correspondence medium, however, stems from its inability to provide opportunities for meaningful interactivity between instructors and students in ways interwoven with the course materials. Now, however, distance education can offer an educational opportunity that works every bit as well as a place-based format, with some superior opportunities such as the abililty for a student to provide regular, significant feedback. A key advantage to a place-based offering has been the opportunity for students to interact with faculty, teaching assistants, and other students. This improves such skills as presentation and debate, and provides a rewarding social opportunity for all participants. Computer-based teaching and learning can be highly interactive as well, but unfortunately, it still tends to share a sterile image with the correspondence-based medium of instruction. In our observation, this is not so much due to the Computer medium itself, but rather to the perceived importance of face-to-face interaction. We argue that direct positive experiences of computer-mediated communication (CMC) quickly puts outworn perceptions to the test.

New developments in interactive technologies are blurring the lines between place, time, and distance and in doing so are mitigating the need for in-person communication. Two notable examples of this are video-based lectures, where students meet in smaller groups in satellite videoconferencing facilities, and virtual seminars, where students participate in computer-mediated environments using the world wide web and various special software packages, such as multimedia browsers and chat facilities. These developments signal a neat transition from reliance on face-to-face instruction to increasing acceptance of the viability of multi-media-based instruction, particularly over the Web. See, for example, the section entitled '*Concluding Vignette*' which uses the example of one student to show how changes in distance education facilitated by the web positively impacts students' learning experiences. Students involved with online instruction have access to a variety of tools and techniques that allow implementation of instructional design features that enhance the flexibility, interactivity, and social aspects of the learning process.

In this paper we describe how a rich fabric of social activity is integral to the design of a Web-based upper-level university Business course on "Information Analysis and Systems Design" in ways that enhance teaching and learning by extending and enriching the social nature of the learning experience. To do this, we designed the course through the "lenspiece" of cognitive flexibility theory, a derivative of constructivist principles of learning.

Constructivist theories assume one unifying principle: That is the assumption that truly meaningful learning

BEST COPY AVAILABLE

IR019279

arises from students' active engagement in shared learning experiences (Brown, Collins, & Duguid, 1989; Lave, 1988). This assumption underscores both theoretical and practical efforts to capture dynamic interactions between the cognitive and social dimensions of learning (Resnick & Collins, 1996; Salomon & Perkins, 1995). The business course focuses on telecommunications applications for the corporate and private sectors. Undergraduate students who take it typically have little work experience and thus require opportunities to practice new learning in cases that reflect the complex nature of the workplace itself. For instructional design purposes, we use the precepts of cognitive flexibility theory, adapted from Spiro, Feltovitch, & Coulson (1996). These precepts emphasize strategies designed to enhance complex learning through multiple representations of new information anchored in particular contexts. In this case, students are given opportunities to acquire rich semantic networks of information and the ability to structure and restructure new and prior knowledge in activities designed to anticipate the demands of variable and changing situations encountered in the workplace.

Tools for Interactive Communications

Virtual seminars are supported by conferencing software. A student enters this course through software such as FirstClass (FirstClass Systems) or Virtual-U (Simon Fraser University) and can read lectures written in the multimedia environment of HTML, link to resources on the web, and participate frequently. If a student is required to participate weekly, for example, (s)he can typically contribute a comment which could take five to ten minutes to contribute in a place-based seminar format. Comparatively, if each of fifty students were to make such a contribution, a weekly time allotment of over four classroom hours would be required simply for student comment in a place-based setting. This is a three credit hour course.

With the interactivity available through the WWW, a distance education course like this can be run in a lock step format where the course is offered in a week-by-week format. This allows for interactivity among the students and allows for the professor and/or teaching assistants to be available over the duration of the course. Since the interactive format allows for better student input than either its correspondence-based predecessor or the traditional classroom setting, it is possible to evaluate student participation in more meaningful ways. A key advantage of the virtual format is the ability to archive every conversation that takes place and thus more objectively evaluate the frequency and quality of students' contributions.

To support such a course, students need access to opportunities to discuss issues and ask questions of the professor, teaching assistant(s), and other students. Electronic mail is sufficient for many of these dialogues, but a chat facility allows for group discussions and some social interaction. The Palace (http://www.thepalace.com) is an example of a tool we use to develop a virtual meeting place (See, for example, the Simon Fraser University instance of the Palace used for on-line courses designed by Brent DeWaal at http://www.sfu.ca/~dewaal/palace/palace.htm).

The Analysis and Design of Business Information Systems

Structure, Organization, and Process.

The course outlined in the '*Concluding Vignette*' is a business administration course introducing students to the roles and techniques supported by a Systems Analyst. The course was offered using the Virtual University Toolset (SFU) in the Spring term of 1997 to a group of 50 students. The students were a mix of Canadians and Europeans; the Canadian students comprising co-operative education students studying during a work term, on-campus students seeking a flexible option, and part-time students through the Open University. European students received credit for the course through their own institution.

The course was run on a week-by-week basis for a thirteen week term. Students would receive a lecture written in HTML to correspond with assigned text readings, and would see a 'top ten list' of the most important issues to understand for the week. After receiving these materials, the students were required to comment at least once on the material under study. The comment could agree or disagree with the top ten list, bring a personal experience into the discussion, or identify a point from the readings or the lecture notes. A typical week would see at least one student bring in a strong point of view, often from personal experience, and the thread of conversation would follow that thread closely.

Students had access to the professor and teaching assistant in several different ways. They could post a question in the conference, e-mail directly, or have interactive access through virtual office hours.The professor was

available for two hours weekly in an interactive chat room (palace) designed specifically for the University (Brent DeWaal). Questions about the course, exam, and other topical references would typically start the conversation, but the students would often remain signed on after the professor had left to discuss course and social issues together. A separate conference for social issues was set up, but not used by the students in this application of the course. An example of the first two weeks dialogue for the course can be investigated at http://www.sfu.ca/lohnlab/projects/demo/bus362/.

Assignments were sent in via FTP, fax, mail, or e-mail. Problems with this format are that feedback could be unfamiliar to students used to receiving assignments covered with comments on the paper, and that viruses were a frequent concern on the receiving computer. Overall, the students suggested the format was a robust environment in which to learn. The opportunity to take a course while physically away from the campus, and to meet the European students was described as distinctly positive. Performance overall was comparable to a place-based offering, with higher performance on conceptual topics and nearly identical performance on the technique-oriented components of the course.

Enhancing the social nature of Web-based learning .

Cognitive flexibility theory emphasizes the need to organize an array of learning experiences for the novice student. The instructional design principles we use in this course (see Rossner-Merrill, Parker, & Chu, 1998) are implemented in strategic ways to take advantage of the flexibility of the computer-based medium for information sharing and examination of case applications provided by the instructor and through the efforts of the students themselves. We implemented these principles in the following manner:

1. *Present information from multiple perspectives using case studies that present diverse examples.* In the online sessions, *all* students are required to participate in *each* lesson, a practice designed to focus attention on the case-based assignments with examples provided by the instructor and from students' own research and experiences. These are used to support, modify, or disagree with the more abstract concepts under discussion. This approach brings perspectives that are far more diverse by nature of the set expectations for participation and the nature of the dialogue that ensues around key concepts.

2. *Make instruction very specific.* Students move through the course working in a carefully crafted week by week schedule. Weekly topics are outlined in detail, including a topic to focus the discussion and pre-readings from the textbook. To focus this further, the text provides a detailed case running through the chapters outlining the storyboard concept as described above. The students then complete assignments based on a small but integrated case study which parallel the text examples. "Instruction" is far more collaborative in the virtual seminar since the students are responsible for running the sessions during each of the weeks, but the focus remained specific in each format.

3. *Create opportunities for students to develop and articulate their own representations of information.* On-line learning offers distinct opportunities for students to participate which are unavailable in other formats. In a lecture or seminar with fifty students, it can be difficult to draw out personal representations from each, or even a majority of students. There are dominant personalities who see a participative component as an opportunity to get noticed, and there are shy or reserved students who are not comfortable entering into a discussion in such a setting. In an online session, guidelines can be provided for a minimum and a maximum required participative component. Measurement is also easier and more objective. Class leaders in both sessions of the on-line seminar were students who suggested they would not have been so "vocal" in another format. Contrary to some expectations of isolation and lack of interaction, many threads in the week-to-week discussions illustrated personal experiences to emphasize a point and discussed other's experiences in some detail.

4. *Instruction emphasizes students' active knowledge construction rather than the passive transmission of information from instructor to student.* In a place-based setting, several different structures are possible. The lowest common denominator is the lecture format, where a professor dictates information to a student. Current practice includes hands-on sessions, issue and case discussions, and opportunities to break into smaller groups to discuss particular issues. Online seminars move the responsibility for delivery of topical material away from the professor. An online "lecture" can be delivered, but the structure over the week allows for considerably more time for reflection about points made and contribution by each participant at least once. Encouraging personal examples allows for the online session to bring a rich series of illustrations from each participant. The internet also allows participation from diverse geographical boundaries; the students in Europe offered a rich, global

perspective to enter the discussion.

5. *Students are introduced to the complexity of the information to be learned at the outset of the course.* A particular problem for the course is the delineation of the scope and objectives of the material to be covered. Since students come from disparate backgrounds, primarily Information Systems, Accounting, and Computer Science, they bring different expectations and reference points into the class. Much of the material is technique-oriented, which further exacerbates the problem. The solution to this is elusive, and seems more prevalent in the online course than in place-based teaching. Students tend to be unfamiliar with both the material under study and the nature of the online format, so some concerns are nearly always expressed early on in the course. The second offering of the course used a new textbook which outlined the entire scope of the course in an introductory chapter. This helped frame the material under study. Online seminars need to carefully articulate expectations at the outset, but this is a difficult task to accomplish. As the format becomes more familiar, this may become less of an issue.

6. *Stress the interconnectedness of the content to be learned.* A problem with an earlier design of the course was an uneasiness with the goals, leading to questions like 'Where exactly are we trying to go?' As mentioned earlier, a new text adoption with an introductory chapter outlining the total content coverage helped alleviate this problem. This course is offered to students with disparate backgrounds, many of whom have little experience with the material to be covered or its context. An online course covering a topic like this represents a significant challenge. It was found worthwhile to introduce the course material in its entirety very early on in the course to set the context. This deductive approach allows students to reflect back to the "big picture" as the course progresses. The instructor also emphasizes the connected nature of the materials to assist students efforts to conceptualize the many different aspects of the course content.

7. *Avoid oversimplification of content. Look for students' conceptual oversimplification and inability to apply knowledge to new cases.* The Business Administration course includes a combination of broad, conceptual material and technique-oriented topics. The two complement each other, since the techniques represent tools to facilitate the conceptual objectives. A distinct advantage of the place-based offering of the course is the ability of the teacher and teaching assistants to openly discuss methods, and to rapidly create illustrations and examples. This proved difficult in the current design of the online course. Students expressed some frustration or confusion about how to complete assignments, and the technology was pushed to its limit for interaction. Newer conferencing opportunities will mitigate this problem, but it needs to be carefully considered.

Conclusion

We find that online teaching requires a different emphasis than the place-based mode of delivery. Each format can tackle similar objectives, but place-based learning currently has superior interactive opportunities. Online learning, conversely, allows for reflective time in the learning process and a degree of participation well beyond that which is possible within the time constraints of a place-based session. Through the medium of computer-based communication combined with strategic principles of instructional design drawn from constructivist theory, we are able to take full advantage of social aspects of learning in ways that cannot be paralleled in the traditional classroom setting.

Online courses offer students both the flexibility of a Distance Education course and a new, intensive opportunity for socialization and constructive participation. They can bring individuals' worldly experiences into the discussion, and guide the threads that take place in the conferences. There is probably an optimal balance among distance, place-based, and virtual seminars in an educational programme, and an optimal format for particular contexts to be learned. Virtual seminars, we find, have much to offer to this mix, and future research needs to determine the place for each educational setting.

Concluding Vignette: A Student and the Web

Julie, a co-operative education student circa 1994, is a single mother working on a co-operative work term away from her university. She is 18 credit hours away from graduation and hopes to complete her degree in one more semester. To accomplish this, Julie needs to either take six courses in her final semester or find a way to get three credit hours while on her work term.

Study by correspondence

Although not her first choice, she has found a course offered through Distance Education that will fill the three-credit requirement. The flexibility makes completion possible, and her GPA will be a lot better if she keeps the on-campus term to a manageable five courses. After registering, materials are sent to her for self study and she is ready to begin. For Julie, a typical workday is hectic, but manageable, in terms of work and family and study responsibilities. Study time must take place in the evening after the baby is sleeping. Her day is flexible enough to accommodate this but while the opportunities afforded by co-operative education and distance education are engaging, adult conversation is restricted to the workplace.

Study on campus

The following semester, Julie heads back to campus. She quickly revives her friendships with several other students and time on campus has its elements of fun. Several courses are offered in a seminar format where students make presentations and are expected to offer input to the discussion topic. This adds to the experience, and makes the on-campus time considerably more enjoyable than the time spent in the evenings working alone.

Study on the Web

In 1997, Julie is considering a Masters degree as the idea of progressing in her chosen career is luring her back to post-secondary education. A new opportunity has presented itself via a part-time Masters program with a strong distance component supported heavily by the WWW. The web component of the program leads to a Graduate Diploma, and admission to the full-time Masters program would include consideration of work done toward the Graduate Diploma. The flexibility is appealing to Julie, but the thought of more isolated study weighs heavily on her judgement. The idea of trying a new course format with extensive use of computers seems a little intimidating, but she has found one course that looks interesting. She decides to give it a try before committing to either an extended part-time program or another year with reduced and sporadic income.

The course, offered in a novel virtual format, boldly promises strong interactive components, and has a significant portion of the grade allocated for constructive participation. The final note in the outline states that the course is offered simultaneously at both a Canadian and a European university and the idea of meeting and studying "online" with international students intrigues her. Julie registers for the course with rather high expectations, and not just a few concerns about the ability of a computer-mediated environment to be easy to learn, easy to use, and reliable throughout the course.

Julie's application for admission to the course as a post-graduate student without full program registration is approved by the professor, so she registers, pays, buys a textbook, and fights back the feeling of deja-vu this process carries with it. Julie is computer literate, works easily with a browser, and has a full Internet access from her workplace. Daycare can be extended into the early evening one or two nights per week, so she decides to try the course using her office computer right after work. Course virtual office hours run in the morning to accommodate the European time zones (making their office hours in the evening there), and she can arrange to make this time up at work. If this course works out, she intends to buy a computer for home and register with the Diploma Program; if not, at least she hopes to gain a little Internet experience through the course.

Julie and the Web

The instructions included in the course materials identifies a web site to access, an account name and an initial password. The first exercise is to sign onto the site, find the course number, open the introductory lecture, and respond to its instructions. The lecture, written in a rich HyperText Markup Language (html), introduces the professor and the teaching assistant complete with a video clip where they greet students and discuss the objectives and format for the course. The notes then ask students to create a short resume in an on-line forum available only to students in the course, and post a note saying that (s)he is here and properly into the course. (As a joke, the prof states that if you can't access this lecture, please phone.) Julie scans through the resumes of students already in the course, apprehensively clicks the post a message button, then announces her presence. After successfully completing that task, and armed with the information the other students have provided, she starts to work on a short resume describing her current academic situation, her interests, and her reason for taking this course in this particular format. She adds that she is still a little wary of a distance format, but that this seems different.

***Course organization and process*.**

The course starts with an introduction of terms of reference, material to be covered, and a rather lengthy description of the format. Each student needs to download a copy of the chat facility used for virtual office hours every week, and weekly participation is mandatory. For the first few weeks, the lecture material used to start the course is comprised of a lecture written in HTML, with hypertext links to additional material such as the chat software, software available for download to complete exercises and assignments, additional reference materials, or interesting sites. Midweek, the professor posts a top ten list (with apologies to David Letterman) of the most important issues he expects the student to learn. These issues come from the assigned textbook material, the lecture notes, or the postings of students commenting on the week's readings. The students are expected to comment meaningfully on the readings and/or the top ten list, stating whether they agree with it, and to offer other items to include if they feel something was missed. To keep some order in the postings, students are asked to post a maximum of three times per week, and to keep their total weekly postings to a maximum of two screens of text. The participative component of the course is made up of the student's weekly contribution plus a group effort where they are responsible for one of the weekly top ten list. The groups post a list at the beginning of the week starting in the third week, and have an opportunity to revise it after seeing the other student's feedback.

In order to familiarize students with the WWW, the teaching assistant offers prizes for the first student to follow the clues offered in the Internet scavenger hunt. The first hunt is a piece of cake: the TA wants a student to identify the definitive top ten list on the web. Julie quickly finds David Letterman's page, but then notices one of the European students has already won. Julie posts a note begrudging the fact that the European students get a ten-hour head start due to time zone differences, especially since the TA appears to be nocturnal as most of the material is posted late in the evening. Since the top ten needs to be done after the third week by the students working in groups, Julie decides to sign up with one of the European students to get an edge. She can post a message in the evening, and expect a response when she gets up in the morning. This optimizes her chance to do well in the participative component by maximizing the number of times she and her European partner can send messages back and forth. She scans the on-line resumes again, and sends electronic mail to the current scavenger winner congratulating her and asking about her interest in snowboarding. The European student responds that she is coming to the host university on an exchange semester soon, and a friendship starts to form.

References:

Brown, J.S., Collins, A. & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher,* 18(1), 32-42.

Lave, J. (1988). *Cognition in practice*: *Mind, mathematics, and culture in everyday life*. Boston, MA: Harvard University Press.

DeWaal, Brent (1986). *The Simon Fraser University Palace,* Web URL http://www.sfu.ca/~dewaal/palace/palace.htm

Resnick, L. & Collins, A., (1996). Cognition and learning. In De Corte, E., & Weinert, F.E., *International encyclopedia of developmental and instructional psychology* (pp. 377-381). New York: Elesevier Science, Inc.

Rossner-Merrill, V., Parker, D., & Chu, S. (1998). *Using constructivist instructional design features in two online courses: Notes from the field*. Unpublished manuscript, Simon Fraser University.

Salomon, G. & Perkins, D. (1995). Learning in wonderland: What do computers really offer education? In*Yearbook of the National Society for the Study of Education* (pp. 111-130), 95th/pt 2.

Spiro, R.J., Feltovich, P.J., Jacobson, M.J., & Coulson, R.L. (1996). *Cognitive flexibility theory.* Web URL http://www.lincoln.ac.nz/educ/tip/16.htm

BEST COPY AVAILABLE